

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

Listing of Claims:

Claim 1 (Currently Amended): Stereo demultiplexer configured and adapted for receiving to receive a frequency demodulated stereo-multiplex signal ($m(t)$) which comprises at least a stereo-difference signal ($m_d(t)$), a stereo-sum signal ($m_s(t)$) and a pilot carrier, said stereo demultiplexer comprising:

a decimation filter configured to extract, from said frequency demodulated stereo-multiplex signal, a sampling rate decimated signal decimated by a factor D regarding said frequency demodulated stereo-multiplex signal, thereby providing the stereo-sum signal and the pilot carrier signal and eliminating the stereo-difference signal; and

a PLL-circuit configured and adapted to receive said extracted signal as an input signal and for recovering, from said input signal, the pilot carrier or at least one harmonic thereof of the pilot carrier to perform an amplitude demodulation, wherein said PLL-circuit receives an input signal that, in essence, solely comprises said stereo-sum signal ($m_s(t)$) and said pilot carrier, wherein said input signal is sampling rate decimated by a decimation factor of D with regard to said received frequency demodulated stereo-multiplex signal.

Claim 2 (Currently Amended): Stereo demultiplexer according to claim 1, wherein said sampling rate decimated stereo-sum signal ($m_s(t)$) is further sampling rate decimated by a decimation factor of E before said PLL circuit receives it as input signal further comprising:
sampling rate decimation means configured to further decimate the sampling rate of said extracted signal by a decimation factor E, before said PLL-circuit receives the signal that passed through the decimation filter and the sampling rate decimation means.

Claim 3 (Currently Amended): Stereo demultiplexer according to claim 1 configured and adapted for receiving a frequency demodulated stereo multiplex signal ($m(t)$) which comprises at least a stereo difference signal ($m_d(t)$), a stereo sum signal ($m_s(t)$) and a pilot carrier, comprising a PLL circuit configured and adapted for recovering the pilot carrier or at least one harmonic thereof to perform an amplitude demodulation, wherein said PLL circuit receives an input signal that, in essence, solely comprises said stereo sum signal ($m_s(t)$) and said pilot carrier, wherein said input signal is sampling rate decimated by a decimation factor of D with regard to said received frequency demodulated stereo multiplex signal,

wherein said PLL-circuit outputs is configured to output a recovered pilot carrier which is interpolated so that it the recovered pilot carrier has a sampling rate equal to that of the frequency demodulated stereo-multiplex signal.

Claim 4 (Currently Amended): Stereo demultiplexer according to claim 3, wherein that said PLL-circuit comprises:

means configured to alternately output D-1 or (E·D)-1 interpolated pilot carrier values ($y(k/D+1), \dots, y(k/D+(D-1))$) and one calculated pilot carrier value ($y(k/D)$) are alternately output.

Claim 5 (Currently Amended): Stereo demultiplexer according to claim 4, wherein said PLL-circuit is further configured to perform said interpolation within the PLL-circuit is performed on a basis of a prediction starting at said calculated pilot carrier value.

Claim 6 (Currently Amended): Stereo demultiplexer according to claim 5, further including:

[-] a PLL within the PLL-circuit configured to output which ~~outputs~~ a phase signal,
and

[-] a first sine calculation unit configured to output which ~~outputs~~ said one
calculated pilot carrier value ($y(k/D)$) on the a basis of said phase signal.

Claim 7 (Currently Amended): Stereo demultiplexer according to claim 6, further
including:

[-] second to D^{th} or $(E \cdot D)^{\text{th}}$ sine calculation units each configured to output of which
outputs one of said $D-1$ or $(E \cdot D)-1$ interpolated pilot carrier values ($y(k/D+1)$, ..., $y(k/D+(D-1))$) on a basis of said phase signal and a respective added phase shift value.

Claim 8 (Currently Amended): Stereo demultiplexer according to claim 6, further
including:

[-] a third multiplexer configured to multiplex which ~~multiplies~~ said phase signal
with a factor of 2 before the phase signal it is input to said first sine calculation unit or a
respective second to D^{th} or $(E \cdot D)^{\text{th}}$ sine calculation unit via a respective second to D^{th} or
 $(E \cdot D)^{\text{th}}$ adder, configured to add which adds said respective phase shift value so that the 2^{nd}
harmonic of the pilot carrier is generated.

Claim 9 (Currently Amended): Stereo demultiplexer according to claim 6, wherein
said PLL comprises:

[-] a first multiplier configured to receive receiving samples of the stereo-sum signal
($\leftrightarrow(k)$) as multiplicand at a first input,
[-] a filter configured to receive the output signal of said first multiplier,

[[[-]] a second multiplier configured to multiply said output signal of said filter with a PLL gain (PLL_loop_gain),

[[[-]] a first adder receiving configured to receive said output signal of said second multiplier at a first input as a first summand, configured to receive a constant representing the product of the a pilot carrier frequency (ω_{pil}) and the sampling period at a second input as a second summand, and configured to receive a delayed phase signal which is the output signal of said first adder at a third input as a third summand,

[[[-]] a delay element receiving configured to receive said phase signal of said first adder and configured to supply supplying said delayed phase signal to said third input of said first adder, and

[[[-]] a cosine calculation unit receiving configured to receive the phase signal of said first adder and configured to supply supplying its an output signal of the cosine calculation unit as multiplier to a second input of said first multiplier.

Claims 10-19 (Canceled).

¹⁰
Claim 20 (Currently Amended): Stereo demultiplexer according to claim 6, including
[[[-]] a third multiplexer configured to multiply which multiplies said phase signal with a factor of 2 before the phase signal it is input to said first sine calculation unit and a respective second to Dth or (E·D)th sine calculation unit via a respective second to Dth or (E·D)th adder which adds configured to add said respective phase shift value so that the 2nd harmonic of the pilot carrier is generated.

¹¹
Claim 21 (Currently Amended): The stereo demultiplexer of claim 1, further comprising:

channel recovery means configured to recover and adapted for recovering a left or right channel associated with said stereo-multiplex signal on a the basis of first and second intermediate signals; and

a sampling rate decimator configured to decimate a and adapted for sampling rate decimating of one of said first and second intermediate signals by a decimation factor E_1 and supplying configured to supply said sampling rate decimated intermediate signal to said PLL-circuit as said input signal.

¹²
Claim 22 (Currently Amended): The stereo demultiplexer of claim 21, wherein said channel recovery means is an adder configured to receive and adapted for receiving said first and second intermediate signals as an input.

¹³
Claim 23 (Currently Amended): The stereo demultiplexer of claim 1, further comprising:

channel recovery means configured to recover and adapted for recovering a left or right channel associated with said stereo-multiplex signal on the basis of first and second intermediate signals,

wherein said input signal is one of said first and second intermediate signals.

¹⁴
Claim 24 (Currently Amended): The stereo demultiplexer of claim 23, wherein said channel recovery means is an adder configured to receive and adapted for receiving said first and second intermediate signals as an input.

¹⁵
Claim 25 (Currently Amended): The stereo demultiplexer of claim 1, wherein said PLL-circuit is configured to output outputs a recovered pilot carrier which is interpolated so

that it the recovered pilot carrier has a sampling rate equal to that of the frequency demodulated stereo-multiplex signal.